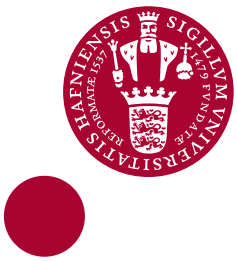

Maps of student discussions about sustainability

Integrating text-mining, network analysis and thematic discourse analysis

Lindahl, Mats; Bruun, Jesper; Linder, Cedric

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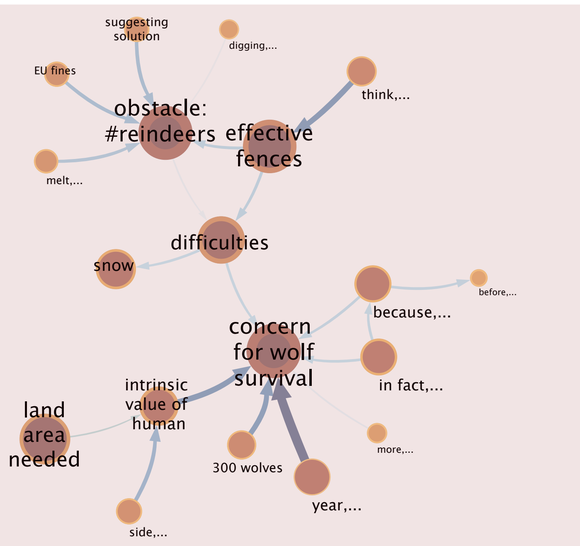
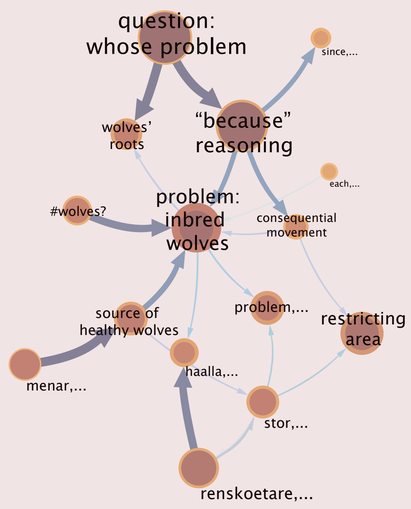
Integrating text-mining, network analysis and thematic discourse analysis

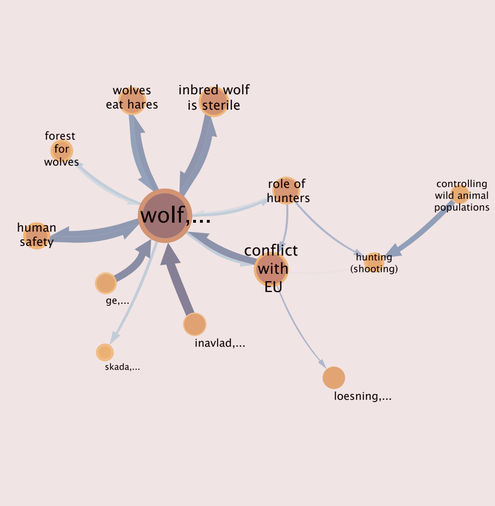
Mats Lindahl, Jesper Bruun, and Cedric Linder



Group 1: From one-sided interpretation to Tug-of-war between solutions and values interpretation.



Group 2: Focus on understanding - not on reaching a conclusion

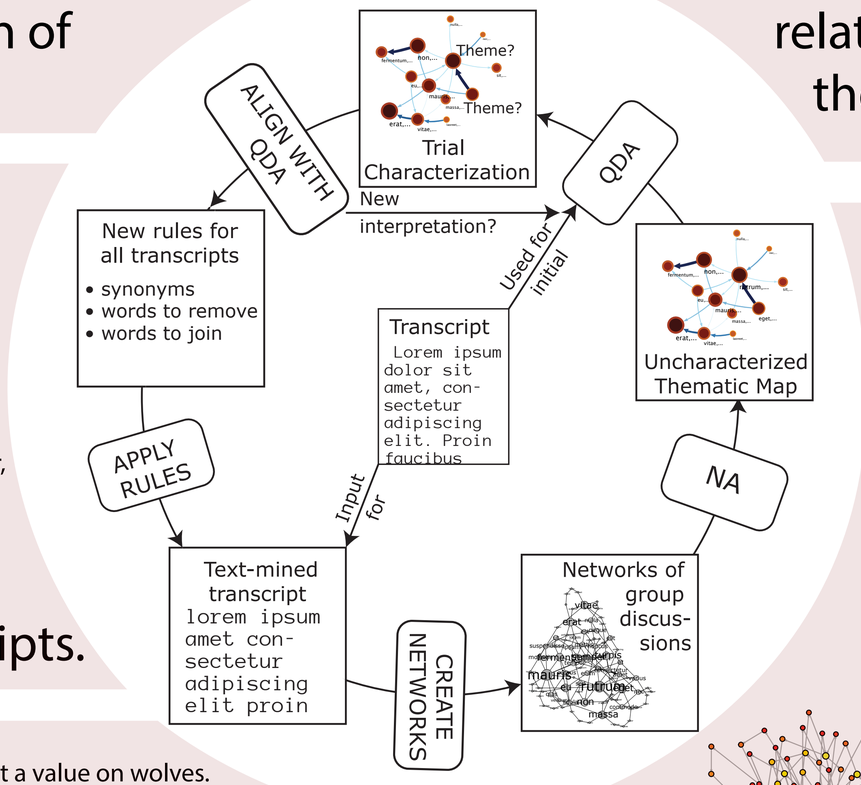


Group 3: Question-and-answer discussion - different aspects of discussion does not inform each other.

Final Thematic Maps and key analytical points from QDA and from the applying the iterative procedure highlighted below.

What this method adds: Patterns in the-matic maps help visualize, add nuance to, and inform interpretation of qualitative analyses.

Characterization of thematic maps is part of a thematic analysis [3] that takes into account relationships between key parts of the data.

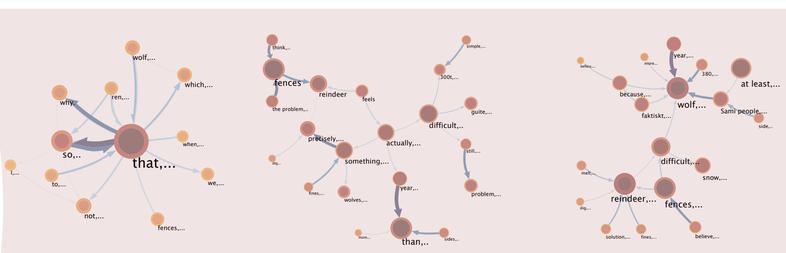


Synonym rule example:
convert wolves, wolf pack, the wolves, wolf's, and wolves' to *wolf*

Remove words rule example:
The word "something" was removed because it did not add to the interpretation

Join rules example:
In Swedish, the phrase "för att" means because. However, taken individually, "för" (for) and "att" (that, to) are common words that do not add to the interpretation.

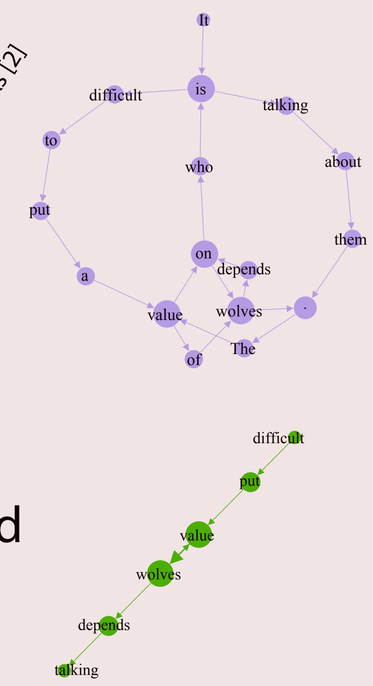
Iteratively formulating rules for text-mining transcripts.



Not text-mined
"It is difficult to put a value on wolves. The value of wolves depends on who is talking about them."

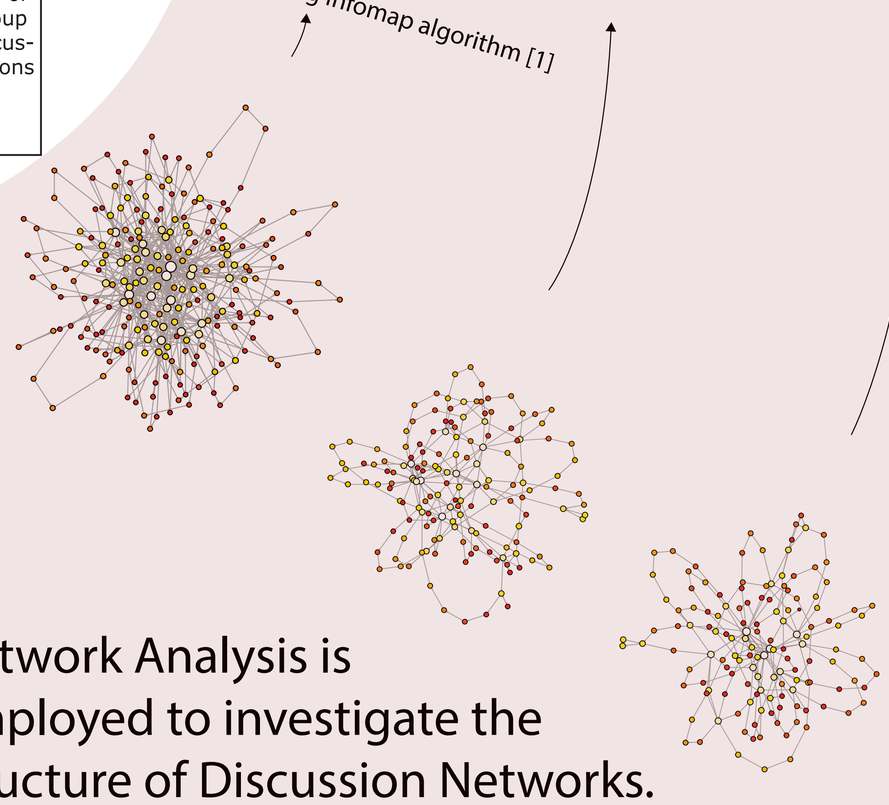
Text-mined
difficult put value wolves value wolves depends talking

Converting text to networks [2]



Discussion Networks are constructed on the basis of word adjacency in text-mined transcripts

Applying Infomap algorithm [1]



Network Analysis is employed to investigate the structure of Discussion Networks. Here, we show the results of applying Infomap [1] to three Discussion Networks.

Selected References

[1] Rosvall, M., & Bergstrom, C. T. (2008). Maps of random walks on complex networks reveal community structure. Proceedings of the National Academy of Sciences, 105(4), 1118-1123.
[2] Masucci, A. P., & Rodgers, G. J. (2006). Network properties of written human language. Physical Review E, 74(2), 026102.
[3] Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative research in psychology, 3(2), 77-101.
[4] Bruun, J. (2012). Networks in physics education research: A theoretical, methodological and didactical explorative study. IND Skriftserie, 28. Copenhagen: Department of Science Education.
[5] A computational study of commonsense science: An exploration in the automated analysis of clinical interview data. Journal of the Learning Sciences, 22(4), 600-638.

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